

Quarterly Divisional Review

15 Jan 2008

1QFY08

**Dr. William F. Denig, Chief
Solar & Terrestrial Physics Division**

NOAA/NESDIS/NGDC

303 497-6323

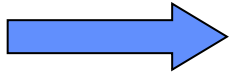
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OUTLINE

Solar & Terrestrial Physics Division



STP Program Overview

Milestones & Performance Measures

Upcoming Events

Accomplishments

Special Interest Items

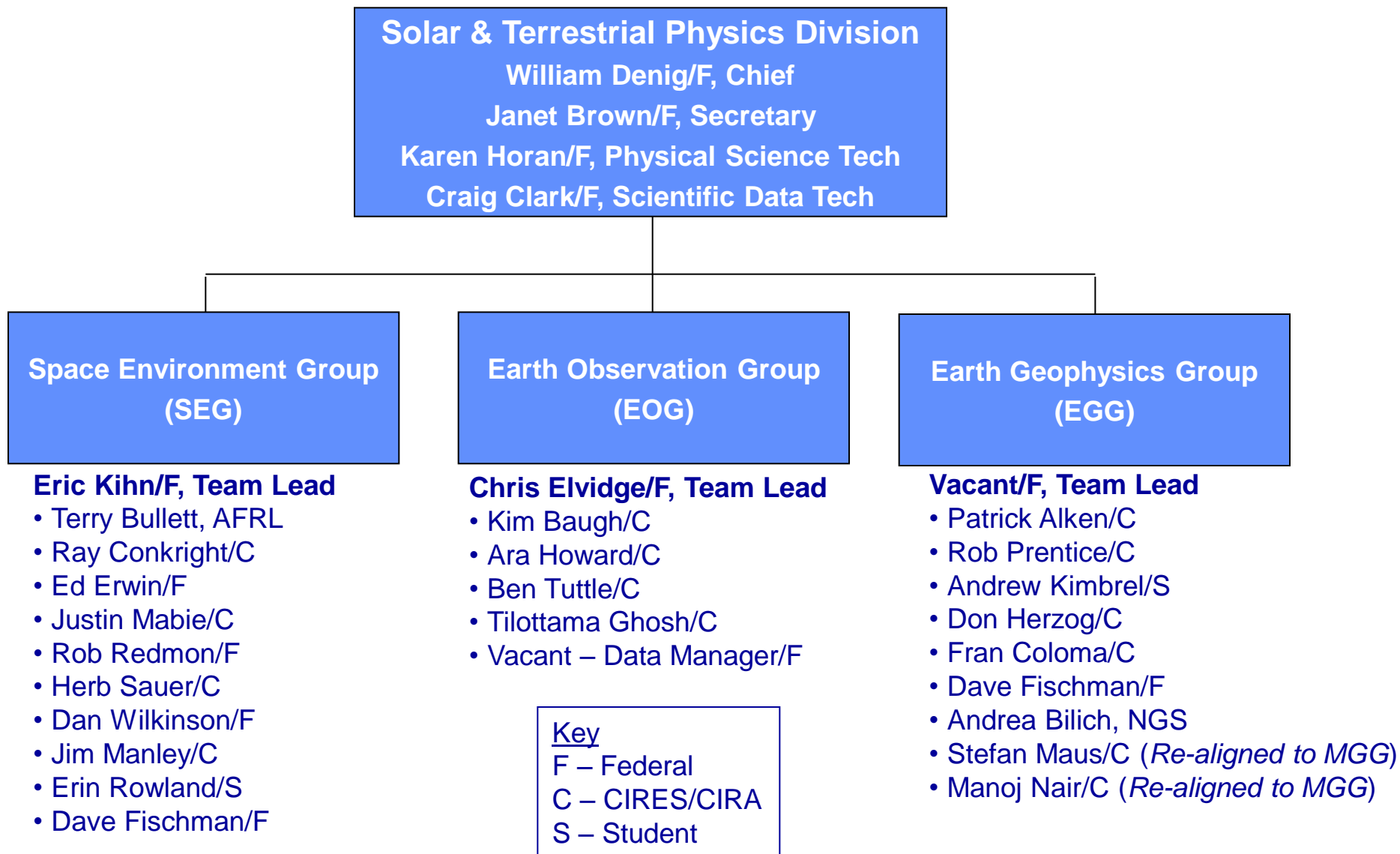
Issues

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Personnel

STP Program Overview





Personnel Changes

STP Program Overview



- **Gains**

- Dave Fischman (SEG/EGG) – Non RT Data Manager (Fed)

- **Losses**

- Stefan Maus (EGG) – re-aligned to MGG
- Manoj Nair (EGG) – re-aligned to MGG

- **Vacancies**

- SEG Space Physicist – Currently on hold; CIRES PRA
- STP Real-time Data Manager – Currently on hold; CIRES PRA
- EOG Hayes Replacement – Deferred

- **Inbound**

- Sara Mohon (SEG) – Hollings Scholar – College of William & Mary
- Ethan Peck (SEG) – Hollings Scholar – Cornell University

- **Pending**

- Ara Howard (EOG) – Transition to contractor
- NGS CORS Technician – Pending – NGS action (FY08 or later)



MOUs / MOAs Status

STP Program Overview



STATUS

| Scope | Team | Type | Partner | NOAA Legal | DOC Legal | NGDC Signed | Partner Signed | Start | End | Status | |
|------------------|------|------|---------|------------|-----------|-------------|----------------|-----------|-----------|--------|------------------------------|
| DMSP Archive | SEG | MOA | DMSP | X | X | X | X | 30-Mar-07 | 30-Sep-09 | G | In place - nothing to report |
| SWx Climatology | SEG | MOU | AFCCC | X | X | X | X | 27-May-04 | 01-Oct-14 | G | In place - nothing to report |
| Ionospheric Data | SEG | MOU | AFWA | X | X | X | X | 21-Aug-06 | 21-Aug-11 | G | In place - nothing to report |
| Ionosonde Sites | SEG | MOU | USGS | X | X | | | TBD | TBD | Y | D&F in Coordination |
| Ionosonde Deploy | SEG | MOU | USAFA | | | | | TBD | TBD | Y | Pending AFWA funding |
| NASIC | EOG | MOU | NASIC | X | X | X | X | 09-Mar-06 | 01-Jan-11 | G | In place - nothing to report |
| CORS Support | EGG | AGR | NGS | n/a | n/a | X | X | 01-Oct-03 | 30-Sep-08 | G | In place - nothing to report |
| World Mag Model | EGG | MOU | NGA | | | | | | | | Transfer to MGG |



CDMP FY08 Status

STP Program Overview



| Subject | Funded in FY07 | Funded in FY08 | POC | Contractor - FY07 (\$K) | NGDC - FY07 (\$K) | % Expended (as of 30nov07) |
|--------------------------------------|----------------|----------------|---------|-------------------------|-------------------|----------------------------|
| Heat capacity mapping mission (I6) | X | | Elvidge | 26.0 | 2.6 | TBD |
| DMSP film scanning (L3) | X | | Elvidge | 560.0 | 56.0 | 100.9% |
| DMSP P/L activation messages | | | Elvidge | - | - | |
| Historical solar spectral data (L16) | X | | Denig | 50.0 | 5.0 | 32.6% |
| Cosmic rays - Forbush archives | | | Denig | - | - | |
| Historical solar observations (L18) | X | | Denig | 87.0 | 8.7 | 100.9% |
| Historical ionosonde records (L7) | X | | Redmon | 71.0 | 7.1 | 92.5% |

FY08 distributions pending CDMP funding (per Tom Ross)

- Fund new starts if funding levels restored
- Else maintain current level of effort if possible

The CDMP DMSP Nighttime Lights project will be a featured video in the contractor's 2007 annual report



FY08 Financial (Planning)

STP Division Overview (1 of 2)



| FTEs | | | | | |
|--------------------------------|---------|---------|---------|-----------|--------------------|
| | STP | EGG | EOG | SEG | Sum |
| Federal FTEs | 4.00 | 0.00 | 1.50 | 4.50 | 10.00 |
| CIRES FTEs | | 1.30 | 3.25 | 3.18 | 7.73 |
| Contractor FTEs | | 0.50 | | | 0.50 |
| Sub-Total | 4.00 | 1.80 | 4.75 | 7.68 | 18.23 |
| Total Program FTEs: | | | | | 18.23 |
| Income | | | | | |
| | STP | EGG | EOG | SEG | Sum |
| Carryover (from FY07) | | | | 170,403 | 170,403 |
| Base Fund Allocation | | | | | 0 |
| Rent Initiative | | | | | 0 |
| Base Travel Allotment | | | | | 0 |
| Other NOAA | 37,485 | 227,271 | 110,000 | 337,550 | 712,306 |
| non-NOAA | | | 555,000 | 150,000 | 705,000 |
| Sub-total: | 37,485 | 227,271 | 665,000 | 657,953 | 1,587,709 |
| Total Program Income: | | | | | \$1,587,709 |
| Expenses | | | | | |
| | STP | EGG | EOG | SEG | Sum |
| OD Overhead | 0 | 0 | 55,500 | 15,000 | 70,500 |
| Federal Salaries | 601,903 | 0 | 357,400 | 834,797 | 1,794,100 |
| CIRES Salaries | 0 | 110,300 | 248,600 | 386,310 | 745,210 |
| Other CIRES | 0 | 5,215 | 4,700 | 23,285 | 33,200 |
| Contracts | 250 | 91,050 | 0 | 236,100 | 327,400 |
| Approved Fed Travel (Base) | 6,182 | 0 | 5,400 | 8,988 | 20,570 |
| Approved Fed Travel (Customer) | 1,490 | 1,034 | 11,800 | 22,012 | 36,335 |
| Assorted Costs | 0 | 0 | 12,100 | 4,403 | 16,503 |
| Publications | 0 | 0 | 5,000 | 3,000 | 8,000 |
| Sub-total: | 609,824 | 207,599 | 700,500 | 1,533,895 | 3,051,818 |
| Total Program Expenses: | | | | | \$3,051,818 |



FY08 Financial (Planning)

STP Division Overview (2 of 2)



Planning Purposes Only

| | | |
|---------------------------------|---------|------------|
| Total Program Costs: | | 3,051,818 |
| Total Income (w/o core): | | 1,587,709 |
| Shortfall (w/o core): | | -1,464,109 |
| | | |
| Possible Funding Sources | | |
| AFWA (Ionosonde): | 350,000 | |
| SMC (NEXION): | 50,000 | |
| NASA (Holmes): | 100,000 | |
| Total Other Funding Sources: | | 500,000 |
| Shortfall with possible sources | | -964,109 |
| | | |
| Expected Core (Ballpark): | | TBD |
| Balance: | | Unknown |

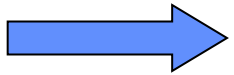


OUTLINE

Solar & Terrestrial Physics Division



STP Program Overview



Milestones & Performance Measures

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FY08 Milestones (*Revised*)

Milestone & Performance Measures



AOP →

| PPBES Program | STP FY08 Milestones | Status | Planned Completion Date | Actual Completion Date | Responsible Person |
|-------------------------------------|---|--------|-------------------------|------------------------|--------------------|
| Space Weather | Integrate Mirrion real-time ionospheric data access system with the Space Physics Interactive Data Resource (SPIDR) - <i>Deferred FY07 Milestone</i> | C | (Q1) 12/31/2007 | | Redmon |
| Marine Transportation Systems | Improve crustal magnetic field model from degree 100 to degree 120 by minimizing the impact of spurious magnetic anomalies in satellite magnetic datasets. | C | (Q1) 12/30/2007 | (Q1) 12/20/2007 | Maus |
| Marine Transportation Systems | Produce radiance-calibrated, cloud-free, nighttime-lights composites for 2005-2006 using Defense Meteorological Satellite Program (DMSP) earth-imagery data. | C | (Q1) 12/31/2007 | | Elvidge |
| Space Weather | Achieve Initial Operating Capability for the Space Environment Impact System (SEIS) at the USAF Combat Climatology Center for use in battlespace M&S scenarios. | G | (Q2) 3/31/2008 | | Kihn |
| Space Weather | Develop Application Programming Interface (API) extensions for ordering datasets via the Comprehensive Large-data Array Steward System (CLASS). | G | (Q3) 6/30/2008 | | Kihn |
| Marine Transportation Systems | Implement an improved cloud-detection algorithm in real-time/static nighttime lights imagery products using 0.5-degree spatial resolution surface temperature grids. | G | (Q4) 9/30/2008 | | Elvidge |
| Marine Transportation Systems | Create station-level metadata records for 80% of all operating magnetic observatories providing data to NGDC in compliance with FGDC and emerging ISO standards. | G | (Q4) 9/30/2008 | | Herzog / Fischman |
| AOP → Space Weather | Complete 15-year environmental climatology for the coupled Ionosphere-Thermosphere-Magnetosphere (ITM) system using the Space Weather Analysis (SWA) framework. | G | (Q4) 9/30/2008 | | Mabie |
| AOP → Space Weather | Release internet-enabled tools to allow station operators to enter magnetic observatory station-level metadata through the Space Physics Interactive Data Resource (SPIDR). | G | (Q4) 9/30/2008 | | Kihn |
| AOP → Space Werather | Incorporate MetOp Space Environmental Monitor (SEM) data into NGDC space weather archives and provide scientific datasterwship of the SEM data. | G | (Q4) 9/30/2008 | | Wilkinson |
| AOP → Marine Transportation Systems | Release version 2 of the degree-720 NGDC geomagnetic field model using a main magnetic field model plus contributions from the lithosphere and magnetosphere. | G | (Q4) 9/30/2008 | <i>Split with MGG</i> | Maus |

AOP → AOP milestone

C Complete
G On-track

Y Watch Item
R Issue



NGDC Milestone (AOP)

Integrate MIRRION with SPIDR



Milestone – Integrate Mirrion real-time ionospheric data access system with the Space Physics Interactive Data Resource (SPIDR).

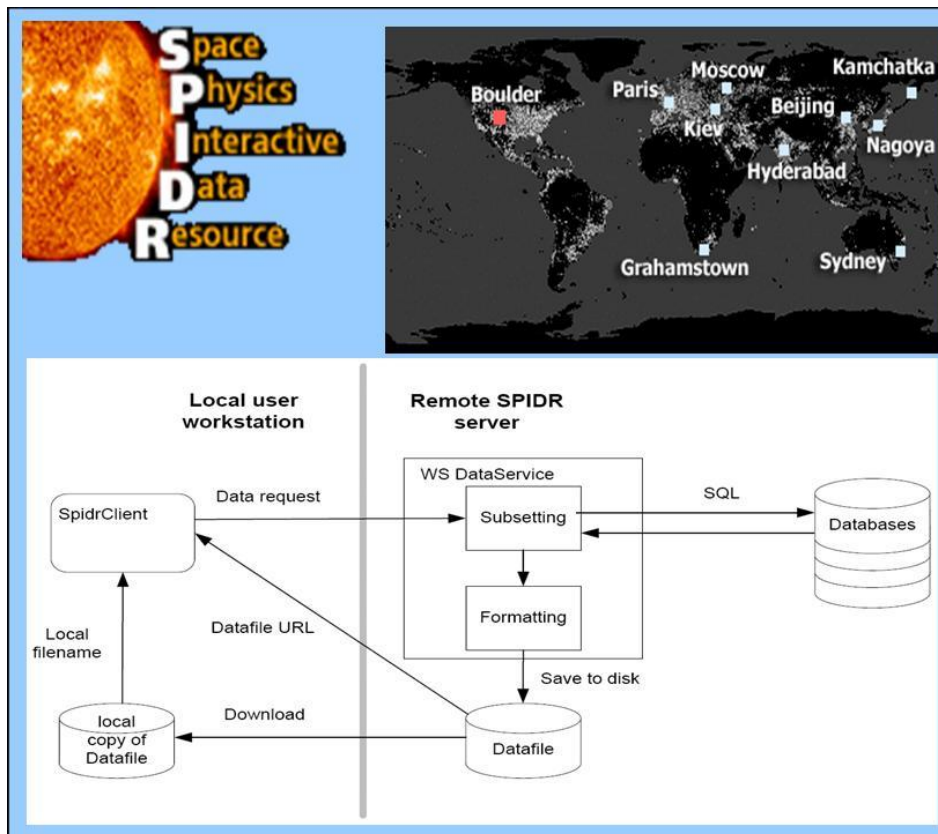
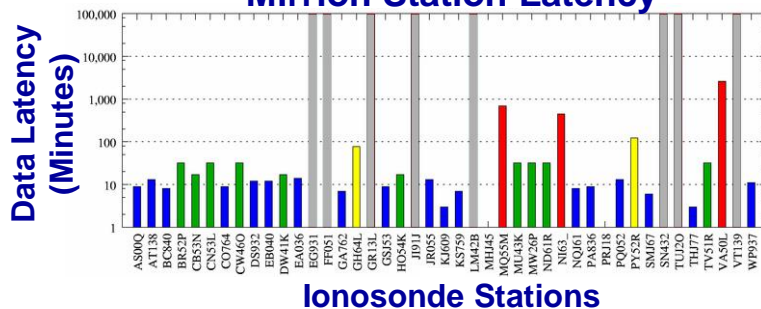
Background – NGDC collects, processes and distributes data from a world-wide set of ionosondes for space weather applications through the Mirrion system in Boulder. The real-time Mirrion has now been integrated with SPIDR to provide retrospective access to ionospheric data to facilitate scientific research and support ionospheric model validation.

Completion Date:

Planned: (1QFY08) 12/30/2007

Actual: (1QFY08) 12/01/2007

Mirrion Station Latency



Significance – Effort further enhances NGDC's role as a world authority in ionospheric applications and as the permanent archive of station-level ionosonde data products.



STP 1QFY08 Milestone

Improve Crustal Magnetic Field Model

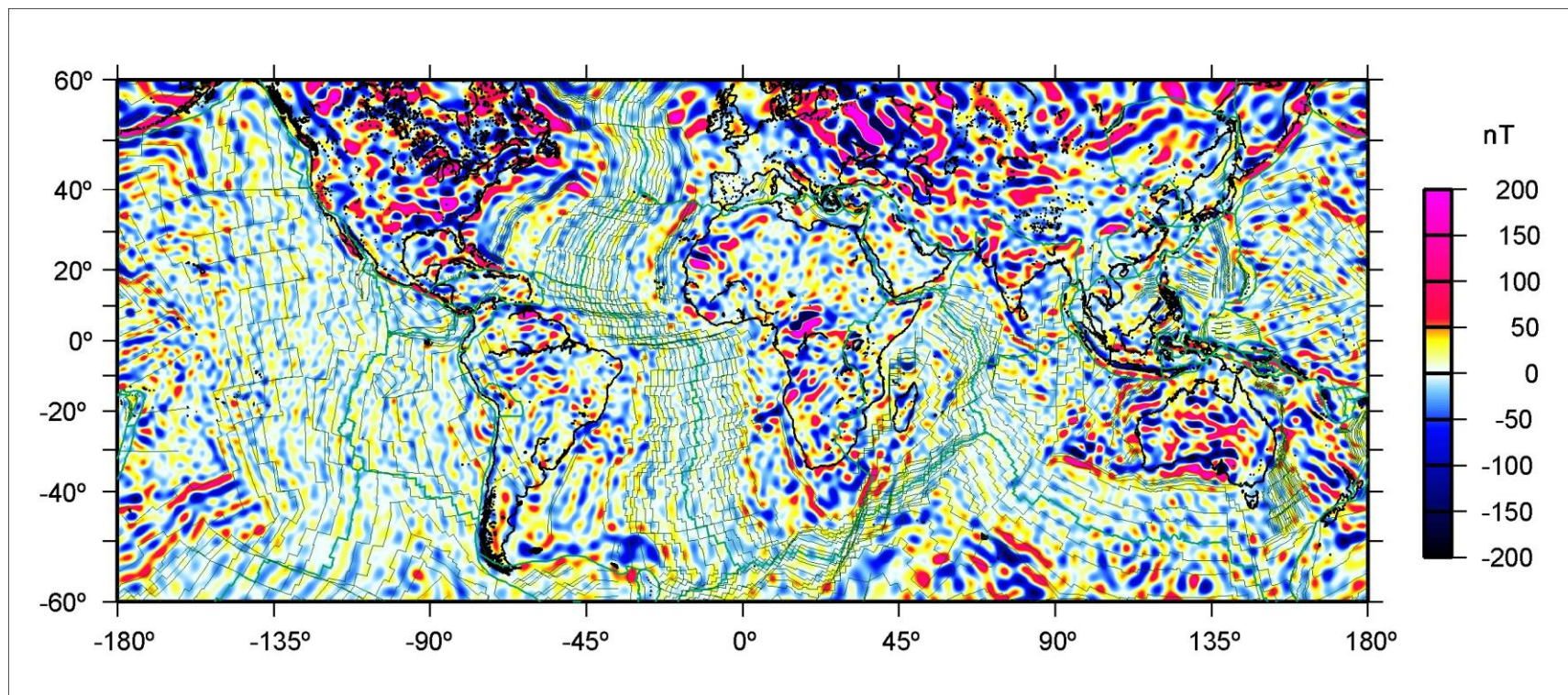


Milestone – Improve crustal magnetic field model from degree 100 to degree 120 by minimizing the impact of spurious magnetic anomalies in satellite magnetic datasets.

Background – Improved model produced using new scalar data from the CHAMP magnetometer. Crustal magnetic field resolved to harmonic degree 120 (333 km).

Significance – Satellite-based magnetic model resolves the direction of oceanic magnetic lineation thus revealing the age and structure of the oceanic crust.

Completion Date: Planned: (1QFY08) 12/30/2007 Actual: (1QFY08) 12/20/2007





STP 1QFY08 Milestone

2005-2006 Nighttime Lights Composites

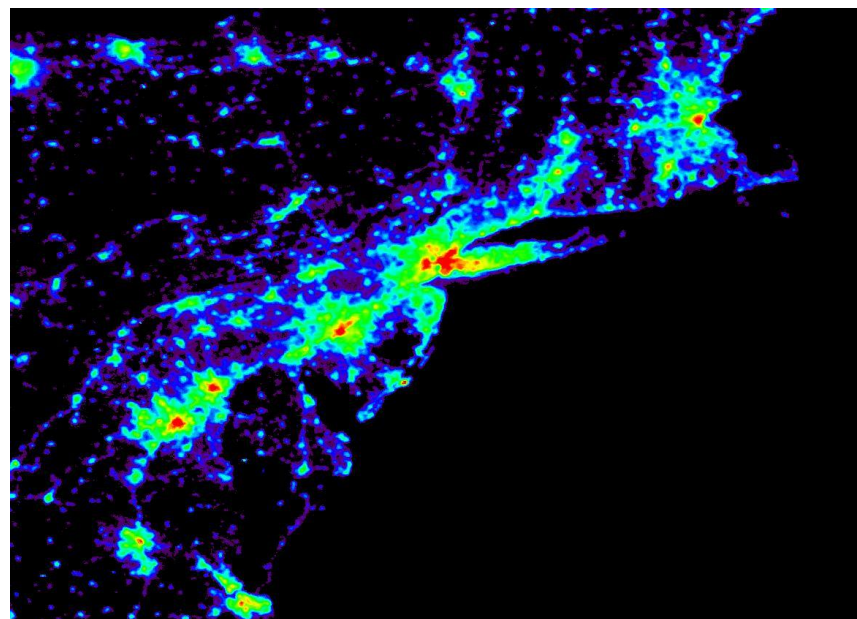


Milestone – Produce radiance-calibrated, cloud-free, nighttime-lights composites for 2005-2006 using Defense Meteorological Satellite Program (DMSP) earth-imagery data.

Background – Nighttime earth imagery is used to monitor anthropogenic impacts from urban lighting & construction, global gas flaring, agricultural burning, and fishing vessels.

Significance – Inter-calibration of satellite data from 1992 to present enables accurate, long-term assessments of man-induced changes in the earth environment.

Completion Date: Planned: (1QFY08) 12/30/2007 Actual: (1QFY08) 12/20/2007





Milestone – Implement at CORS-West the OPUS utility to provide an automated GNSS data processing capability to Web clients in a manner independent of CORS-East.

Background – NGS operates the On-line Positioning User Service (OPUS) as a means to provide GPS users easier access to the National Spatial Reference System (NSRS). OPUS uses the Continuously Operating Reference Stations (CORS) system to provide cm-level, GPS-referenced geo-location.

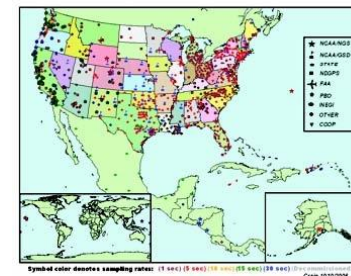
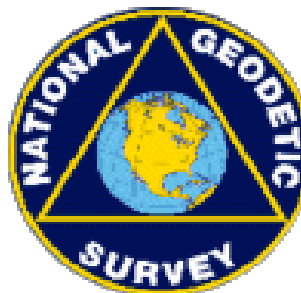
Status – FY07 milestone was deferred pending receipt of NGS hardware. Some hardware is still on backorder at NGS. ISD has installed the NGS Blade Servers within available racks and is awaiting receipt of remaining hardware.

Completion Date: (deferred)

Planned: (1QFY08) 12/30/2007

Actual: *TBD*

Significance – Dual-site implementation of OPUS is part of COOP planning.





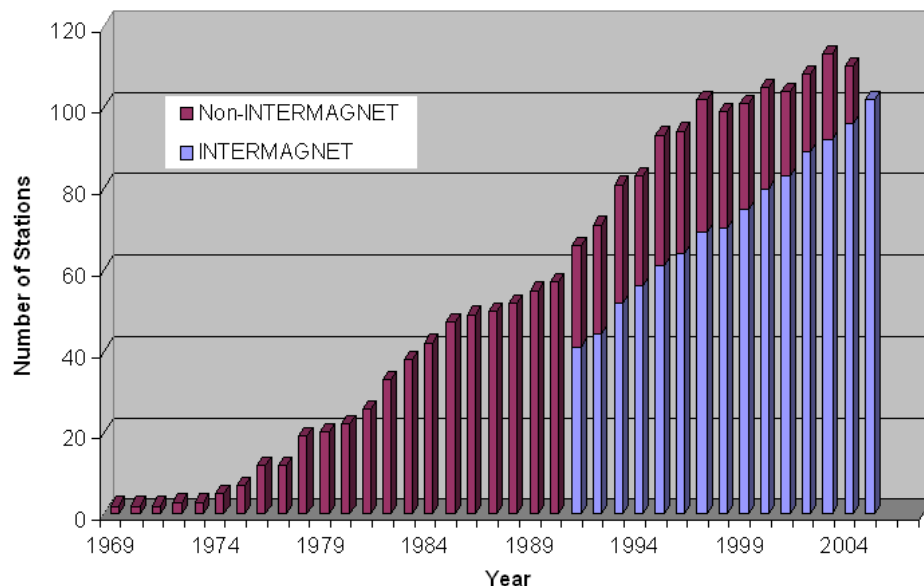
STP Delayed FY07 Milestone

SPIDR Geomagnetic Tools



Milestone – Develop database management tools with SPIDR for the NGDC geomagnetic archive.

Digital Magnetic Observatories



Significance: NGDC maintains significant magnetic observatory holdings within the WDC-STP. The WDC can best serve its users by providing access to the magnetic data through a convenient and straightforward portal.

Background – Various improvements to SPIDR have been implemented:

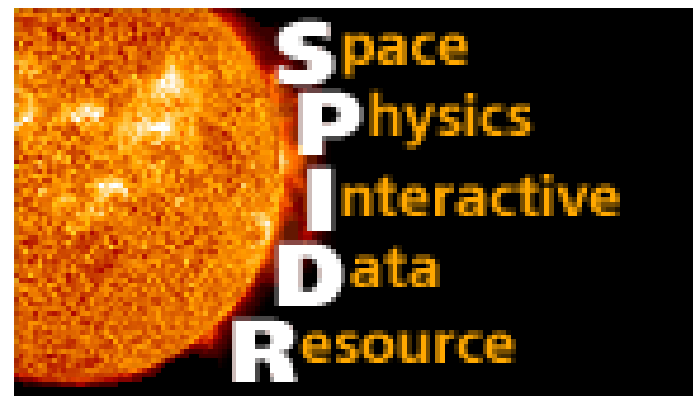
- All available digital 1-m & hourly data loaded into SPIDR - ready for ADIC.
- User Interface modified to facilitate improved accessibility.
- Updated metadata tools to maintain accurate observatory data.

Status – Completed (-ish???)

Completion Date: (*delayed*)

Planned: (Q3) 06/30/2007

Actual: (Q1) 12/30/2007





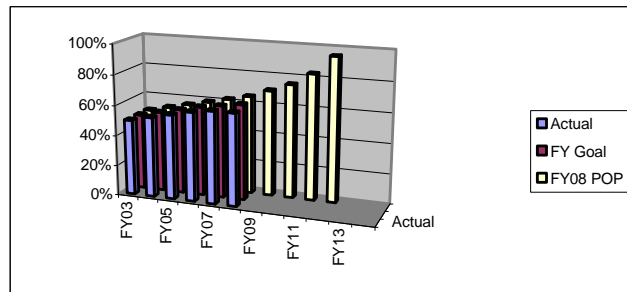
FY07 Performance Measures Milestones & Performance Measures



Performance Measures

1 - Percentage of archived SWx data available to the public on-line

| | Actual | FY Goal | FY08 POP |
|------|--------|---------|------------|
| FY03 | 50% | 50% | 50% |
| FY04 | 53% | 53% | 53% |
| FY05 | 56% | 56% | 56% |
| FY06 | 59% | 59% | 59% |
| FY07 | 61% | 61% | 62% |
| FY08 | 61% | 63% | 65% |
| FY09 | | | 70% |
| FY10 | | | 75% |
| FY11 | | | 83% |
| FY12 | | | 95% |
| FY13 | | | |
| FY14 | | | |

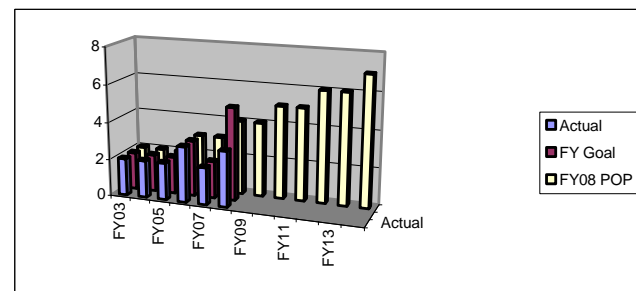


Current Month: Dec 07

| This Q | Actual | FY08 |
|---------|--------------|--------|
| Planned | This Q/Total | Target |
| 61 | 61%/63% | 63% |

2 - Improved retrospective products for understanding the space environment

| | Actual | FY Goal | FY08 POP |
|------|--------|---------|----------|
| FY03 | 2 | 2 | 2 |
| FY04 | 2 | 2 | 2 |
| FY05 | 2 | 2 | 2 |
| FY06 | 3 | 3 | 3 |
| FY07 | 2 | 2 | 3 |
| FY08 | 3 | 5 | 4 |
| FY09 | | | 4 |
| FY10 | | | 5 |
| FY11 | | | 5 |
| FY12 | | | 6 |
| FY13 | | | 6 |
| FY14 | | | 7 |



Current Month: Dec 07

| This Q | Actual | FY08 |
|---------|--------------|--------|
| Planned | This Q/Total | Target |
| 3 | 3/5 | 5 |



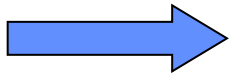
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Upcoming Events

National Radio Science Meeting



NATIONAL RADIO SCIENCE MEETING



University of Colorado at Boulder

STP participated in the 2008 National Radio Science Meeting at the University of Colorado (03-06 Jan). STP associated members presented 2 papers:

A. Bilich (NGS) & K Larson - *Mapping the GPS Multipath Environment Using the Signal-to-Noise Ratio* (Paper FS3-8)

T. Bullett (AFRL), R. Livingston, R. Grubb, J. Wright, N. Zaboltn, & R. Redmon - *First Dynasonde Observations from Wallops Island* (Paper GS4-2)



**International Union of
Radio Science**





Upcoming Events

American Meteorological Society (AMS)



STP will be presenting two posters at the 2008 AMS Annual Meeting in New Orleans, LA (20-24 Jan):

- **W. Denig**, D.C. Wilkinson & R. Viereck – *NPOESS Space Weather Products and Archive Within NOAA* (Paper P1.19, Tues, 9:45-11:00, Exhibit Hall B)
- **D. Wilkinson** & W. Denig – *Looking Ahead to GOES-R Space Weather Data Archives, Access and User Services* (Paper P1.93, Wed, 2:30 – 4:00, Exhibit Hall B)

The AMS meeting will also include the Fifth Symposium on Space Weather on Mon & Tues. **Jack Hayes** is the first speaker in the SWx symposium.

Ed Erwin will man the NOAA booth throughout the meeting.





Upcoming Events

Asian-Pacific Advanced Network (APAN)



Chris Elvidge & Ben Tuttle will participate in the upcoming APAN meeting at the Univ. of Hawaii, 20-25 Jan. Chris is the co-chair the Global Roads – Asia workshop. The objectives of the workshop are to explore the collaborative development of a **free and openly available database of streets and roads in Asia** using a combination of data sources and methods. The backbone of the development would be an on-line system for importing and generating street and road data on a geo-referenced base of satellite images.

STP will present the following papers in the Global Roads – Asia workshop:

- **C. Elvidge & H. Stark** – *Estimation of carbon monoxide emissions - the importance of road data*
- **B. Tuttle** – *Results from NOAA in session on “Results from Test Data”*



Asia-Pacific Advanced Network



OUTLINE

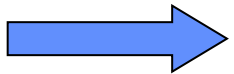
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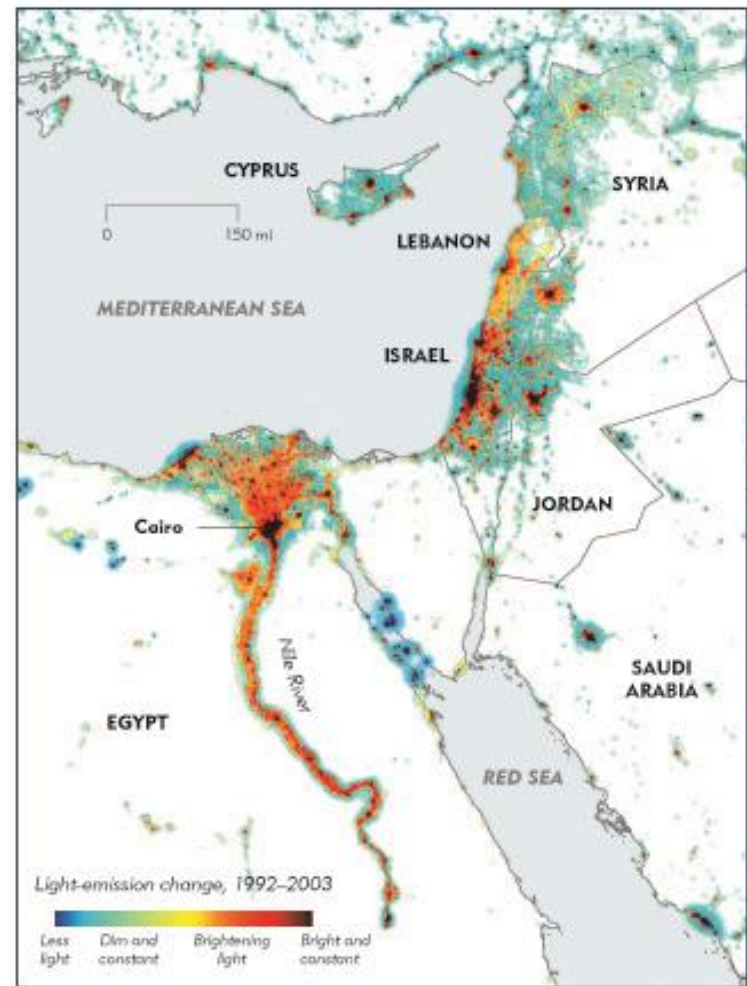
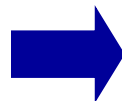
NGDC in the News – The Atlantic

THE **Atlantic**.com

The World in Numbers - Dec'07 Atlantic Monthly

NGDC's Nighttime Lights was featured in an article titled, "Bright Lights, Big Cities" that appeared in the December 2007 issue of *The Atlantic Monthly*. The article discusses the fact that areas of the world are experiencing phenomenal growth in the number of slum dwellers living in and around cities. **Chris Elvidge** and NOAA/NESDIS were credited as the source of the data used. NGDC uses earth imagery data from the Defense Meteorological Satellite Program (DMSP), 1992 – present, to create annual cloud free mosaics of nighttime lights which are then used to monitor global population changes.

The image at the right illustrates the increasing intensity of nighttime lights (colors yellow to orange) as an indication of rising urbanization.



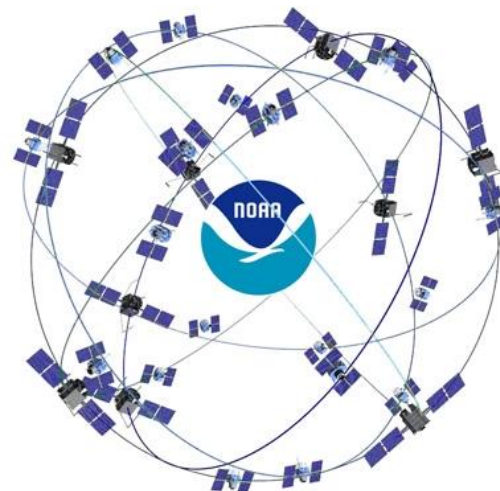


Accomplishments

GPS/GNSS Workshop – 24-25 Oct



The NOAA GPS/GNSS workshop was held October 24-25, 2007 to assess the current utilization of and future needs for GPS/GNSS technologies. 52 participants from across most NOAA line offices attended the workshop which was hosted in Boulder, Colorado by the directors of NGS, NGDC, SWPC and ESRL. 22 technical presentations were contributed plus 1 policy presentation and a workshop kick-off by Dave Zilkoski. A workshop summary has been drafted which is being finalized and will be publically released by NGS. NGS is also soliciting participation on an ad hoc group to consider and potentially act on some of the recommendations offered by the workshop participants.

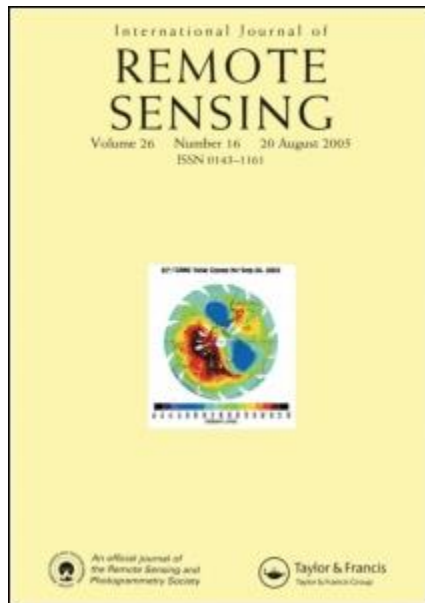


<http://www.ngdc.noaa.gov/stp/gnssw2007/index.html>



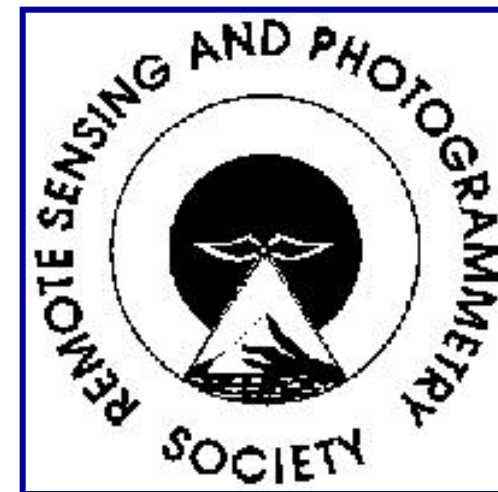
Accomplishments

Len Curtis European Award



Chris Elvidge was honored as a recipient of the Remote Sensing and Photogrammetry Society's (RSPSoc) "Len Curtis European Award" for the "best scientific paper published in the open literature of remote sensing during the year 2006". The award was issued for the paper titled "*Twenty thousand leagues over the seas: The first satellite perspective on bioluminescent milky seas*", published in the International Journal of Remote Sensing (volume 27, pages 5131-5143). Dr. Elvidge was one of 4 co-authors of this paper who were honored for their work.

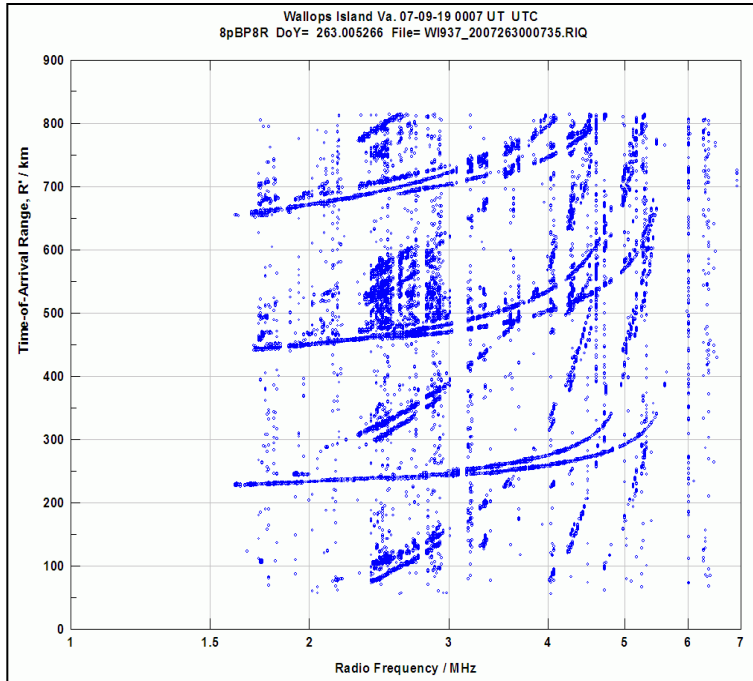
RSPSoc is the UK's leading Society for remote sensing and photogrammetry and their application to education, science, research, industry, commerce and the public service. The International Journal of Remote Sensing (IJRS) is concerned with the science and technology of remote sensing and the applications of remotely sensed data in all major disciplines.



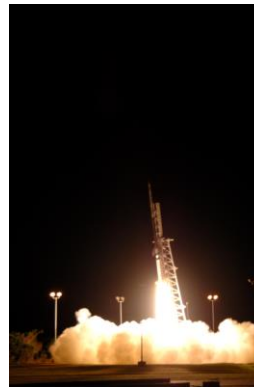
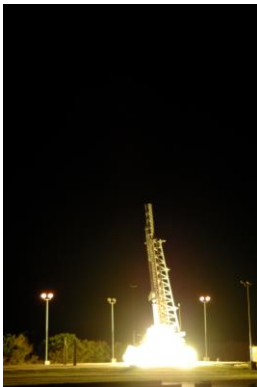


Accomplishments

NGDC Supports NASA Rocket Campaign



Background: Terry Bullett and Rob Redmon participated in a recent NASA sounding rocket campaign to study the causal relationship between atmospheric dynamics and ionospheric transients. Rocket sensors measured local neutral winds and electric fields while ground sensors measured ionospheric density profiles and monitored for the presence of ionospheric scintillation and atmospheric airglow. This effort also provided NGDC an opportunity to field test a new-generation ground ionospheric sounder or Dynasonde which was used for the final launch call.



Significance: Measurements obtained at NASA Wallops in support of this experiment demonstrated the superior capabilities of the Dynasonde over more traditional ionospheric sounding techniques.



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Special Interest Item

Millennium Challenge Corporation



The National Geodetic Survey (NGS) is working with the geodetic survey of Benin (IGN) to establish 7 CORS stations in Benin. This project is run under the auspices of the Millennium Challenge Corporation (MCC). MCC is a United States Government corporation designed to work with some of the poorest countries in the world. Information about the MCC can be found at <http://www.mcc.gov/>.

Francine Coloma welcomed 5 members of the Benin delegation, 2 MCC representatives, a UNAVCO participant, and a language interpreter to NOAA @ Boulder. Ms Coloma presented a briefing on the NGS Continuously Operating Reference Stations (CORS) facility at NGDC. The group also toured the NWS Space Weather Prediction Center (SWPC) and viewed "Science on a Sphere".



Benin National Flag & Coat-of-Arms

STP PMR – 15 Jan 2008





Special Interest Item

International Heliophysical Year – Africa



Justin Mabie & Stefan Maus participated in a Space Weather Workshop in Addis Ababa, Ethiopia, 12-16 Nov 2007. This workshop was the kick-off meeting for the International Heliophysical Year (IHY) African campaign. The purposes of IHY-Africa are to promote international cooperation among developing nations in Africa, foster science education, help establish a critical science infrastructure, encourage African researchers to conduct research and publish findings in scientific journals, and promote establishment of an environmental monitoring network in Africa that furthers our understanding of global climate change. As a part of IHY-Africa, NGDC is funded to oversee the data collection and distribution of GPS measurements for the research community.



IHY-Africa SWx Workshop Participants



Special Interest Item

Office of Science & Technology Report



Background: The Nunn-McCurdy certification of the NPOESS program resulted in significant changes in the space environmental sensing capabilities for this future weather satellite system. The President's Office of Science & Technology (OSTP) directed the OFCM to assess the impacts of these changes on the nation's operational Space Weather Program. The assessment is in final agency review. **Bill Denig** served as a member of the OSTP panel.

Findings (Draft): "The restructuring of the NPOESS program as a part of its Nunn-McCurdy certification will result in the following significant consequences to the Nation's space weather monitoring capabilities. These consequences will, in turn, have deleterious impacts on national defense, economic and societal interests.



Status – The draft OSTP report has undergone agency review and is currently awaiting final release. Mary Kicza provided the NOAA response, *"We find this to be a thoughtful and comprehensive document that reflects well the national situation as well as NOAA's specific concerns caused by the potential loss of these vital observations. As we have been coordinating closely throughout the document's development, we have no comments to add, other than to commend your office for a fine effort on such a difficult task."*



Special Interest Item

WDC Interoperability Demo



Background – A recommendation resulting from the WDC Directors' conference in Bremen was to “implement a network of WDCs with a common data portal using the most advanced communication technology and adhering to interoperability standards” (quote per Dave Clark, 03 July 2007).

Status – The WDC for Marine Environmental Sciences (WDC-MARE) has taken the lead on formulating this interoperability demo. The initial step in the portal framework is to establish a metadata catalog of relevant datasets using information provided by the participating WDCs. **Karen Horan** has contributed WDC-STP (plus MGG & SEG) metadata to this project.

Significance – A major goal of the interoperability demo is to integrate the WDC Network into the GEOSS framework. This would significantly increase the visibility of the WDCs within the global GEO community.





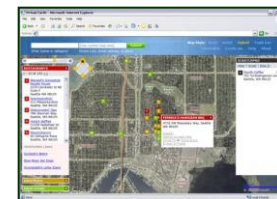
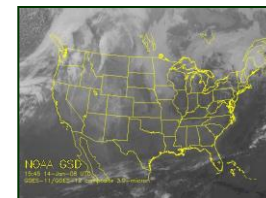
Special Interest Item

CLASS Stakeholder Meetings



Eric Kihn has engaged the CLASS stakeholders to develop user requirements for access to NOAA datasets. Meetings with:

- ESRL Global Systems Division to discuss CLASS requirements**
- Microsoft Virtual Earth to discuss possible CLASS integration**
- Microsoft R&D team to discuss large database applications**
- Unidata development team to discuss areas of mutual interest**



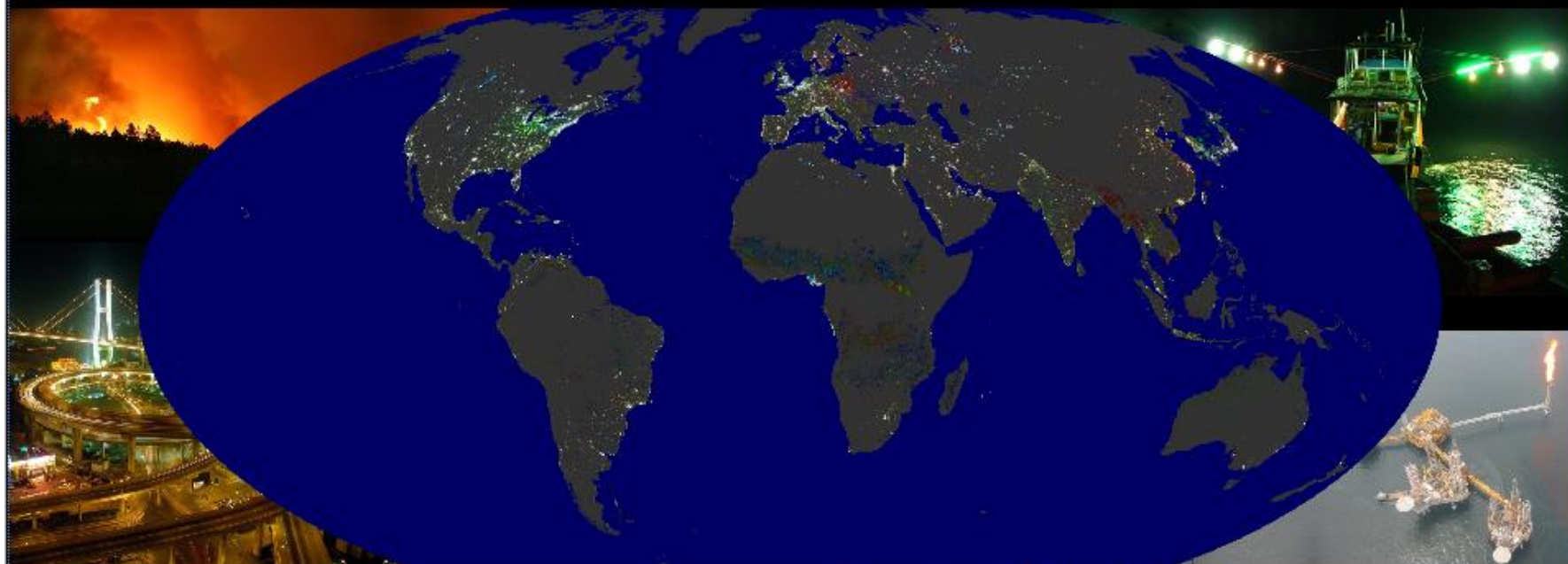


Special Interest Item

New DMSP Nighttime Lights Poster (draft)



Nighttime Lights of the World: 1992, 2000, 2006



Produced from low-light imaging data acquired by the U.S. Air Force Defense Meteorological Satellite Program (DMSP) Operational Linescan System (OLS). This is a color-composite formed with three annual cloud-free composites of nighttime lights: 1992 as blue, 2000 as green, and 2006 as red. The colors indicate changes in nighttime lights between the three years. The OLS detects lights from cities and towns, gas flares in oil production areas, heavily lit fishing boats and fires.



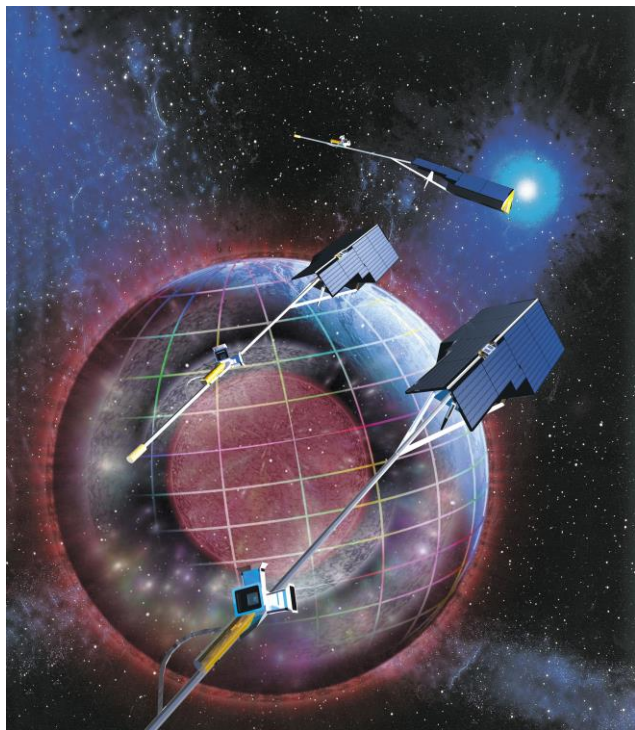
The data were processed by the NOAA-NESDIS National Geophysical Data Center, Earth Observing Group in Boulder, CO: Chris Elvidge, Kimberly Boock, Benjamin Tuttle, Art Howard, Ed Davis, Thibault Gluck. <http://www.ngdc.noaa.gov/dmsp>

Caption: Produced from low-light imaging data acquired by the USAF DMSP Operational Linescan System (OLS). This is a color-composite formed with three annual cloud-free composites of nighttime lights: 1992 as blue, 2000 as green, and 2006 as red. The colors indicate changes in nighttime lights among the three years. The OLS detects lights from cities and towns, gas flares in oil production areas, heavily lit fishing boats and fires.



Special Interest Item

Reconsideration of NRT Magnetic Data



A Change of Opinion – Within the European SWx community there is renewed interest in near real-time (NRT) access to SWARM magnetic data. The assumed downlink would be through ESA-controlled sites versus those under control of the NPOESS IPO. If this capability is realized, NGDC and the SWPC should have ready access to fully processed and calibrated magnetic products.

Key Point – The NPOESS CORL includes a 2nd tier requirement for magnetic field data from a LEO spacecraft. The specified timeliness for the data is 90 min (threshold) and 15 min (objective).

Status – Stefan Maus has engaged SWARM data managers on the importance of NRT magnetic data for SWx operations. I am in initial discussions with Mike Mignogno regarding FY2010 program change to receive and process SWARM magnetic field data which was submitted to the satellite sub-goal – polar satellite acquisition program in June '07.



OUTLINE

Solar & Terrestrial Physics Division



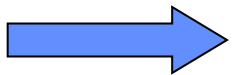
STP Program Overview

Milestones & Performance Measures

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Issues

Summary



Issue

NGS Aerial Photography



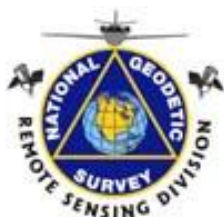
Background: The NGS/Remote Sensing Division has engaged STP/EOG regarding the possibility of NGDC being the long-term archive for their photographic datasets. Data ingest rates are expected to start at ~4 TB per year and to increase when the film archive begins (under CDMP) and with upgrades in digital cameras. Total data volumes may top ~100 TB over the next decade. Data center functions included facilitating orthorectification, feature extraction and web services (WMS, WCS, WFS).

Significance: Provides user access to an NGS long-term record of changes in U.S. development and shorelines. Extends satellite records by 30 years.

Status: STP has met with Dan Kowal to discuss this project. He has expressed a concern that whatever software may be used to serve up this data is consistent with other data center interests. Discussions with NGS are ongoing.



The Coast of Maine





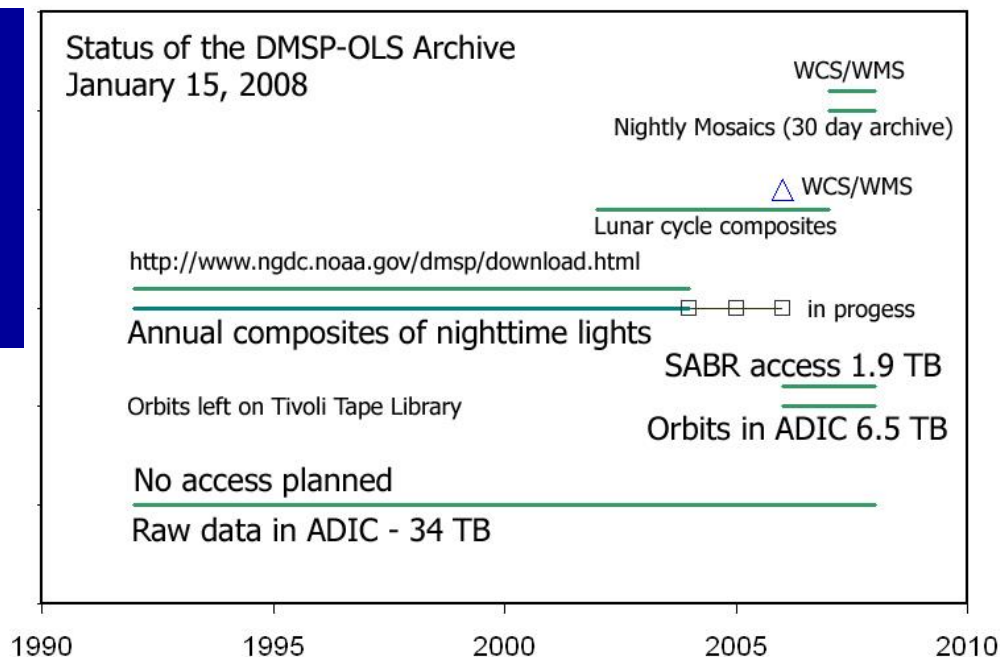
Issue

DMSP Data in CLASS

EOG would like to establish a CLASS archive of processed OLS data

- Processed orbits / sub-orbits from 1992-2005 not migrated to ADIC
- Web access systems difficult to develop & maintain due to lack of funding
- NGDC archive includes fine resolution sub-orbits not publically available
- Opportunity to shift to modern image format (HDF) & remove inconsistencies
- Consideration should be given to migrating other DMSP sensor dataset

EOG is willing to work with the CLASS New Campaigns unit to develop a submission agreement & accomplish this transfer.





Issue



The Nightsat Mission Concept



Status: During the past year 2 peer review papers were published on the Nightsat mission concept. In December 2007 the Nightsat mission concept was briefed by NASA Ames and NASA GSFC to NASA HQ for consideration as a “venture class” mission. NASA Ames is planning a one day Nightsat workshop in March to discuss the level of interest in Nightsat from other agencies, including DoD.

Comment: A Nightsat would address the NRC Decadal Survey recommendation for a capability to monitor the “human footprint” and human activities from space.



60-m resolution image of Washington DC acquired from the ISS



OUTLINE

Solar & Terrestrial Physics Division



STP Program Overview

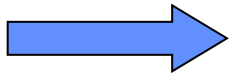
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Summary



Solar & Terrestrial Physics Division

- Extremely pleased with the progress of geomag station level metadata – talk planned for upcoming USGS meeting
- Improved CLASS access capabilities but need to decide which NGDC datasets are appropriate for inclusion (DMSP)
- Space Weather Workshop scheduled for 28 Apr – 02 May 2008 (Enterprise Forum now planned for 21 May in D.C.)
- Looking forward to wrapping up the NGDC agreement with the RAS to facilitate Russian support through the CRDF
- Would like to assist ISD in planning for the utilization of the new 30TB of spinning disk on the augmented NetApp
- Significant progress has been made to clearing out the Tivoli “mound” – Ionosonde wrapping up / solar restarting

Metrics (1QFY08/YTD)

Papers published: 5/5

Papers presented: 11/11

Invited: 3/3

Posters: 6/6

Key:

RAS – Russian Academy of Science

CRDF – Civilian Research & Development Foundation



QUESTIONS?